Historic Opportunities: Discover the Power of Ignition's Historian

Presenters

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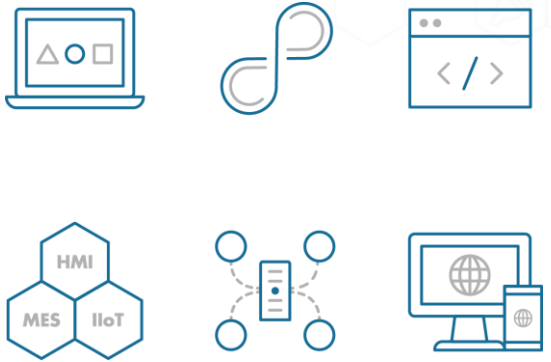
Today's Agenda

- Introduction
- Historian FAQ's
- Ignition's Tag Historian
- Technology Stack
- Data Visualization, Accessibility, Backup & Archiving
- Benchmarks & Considerations
- Q&A

Ignition: Industrial Application Platform

One Universal Platform for HMI/SCADA, MES & IIoT:

- Unlimited licensing model
- Cross-platform compatibility
- Based on IT-standard technologies
- Scalable server-client architecture
- Web-based & web-managed
- Web-deployed designer & clients
- Modular configurability
- Rapid development & deployment



Introduction: Working With History in Ignition

From the Tag Historian Module to the SQL Bridge Module, you can do a lot with history in Ignition – and not just tag history …

Historian FAQ’s

Historian FAQ's

Back to basics: What is a data historian?

- Traditionally: Storing tag values, compression, interpolation, configurable poll and storage rates
- Recently: Some companies have expanded the definition to include storing event-based data as well.

Historian FAQ's

But you can't do tag history with SQL databases, right?

Well, let me tell you…

- Ignition is used by thousands of customers in over 100 countries around the world
- Used for projects with millions of tags
- Used by customers with years of historical data

Why have I heard that SQL databases aren't good for historians?

- All we can say is, check your sources.

Historian FAQ's

Now I'm intrigued. Tell me, what can the Ignition historian do?

- 3 million streaming tags per database, if they're a 10s rate, with 10% of tags changing.
- Throughput depends on a number of factors.
- Details of throughput and storage included in companion document that can be downloaded from our website.

Historian FAQ's

What are the advantages of SQL over traditional data historians?

- Open, accessible data format
- Standard technologies that plug into your IT's existing infrastructure
- Leverage existing backup and archiving tools, and IT Disaster Recovery plans

Historian FAQ’s

What can I do with that data after it’s in Ignition’s Tag Historian?

- Dashboarding and reporting
- Ad-hoc trending
- Streaming to, or inclusion in, enterprise data systems

Historian FAQ’s

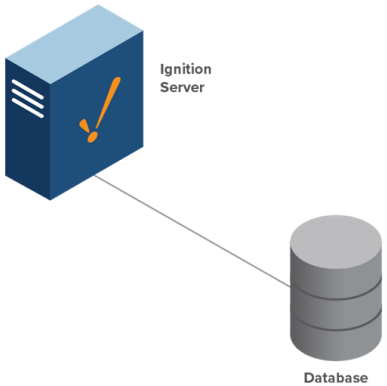
What about scaling?

- Multi-database central server architectures
- Distributed architectures
- Remote data collectors

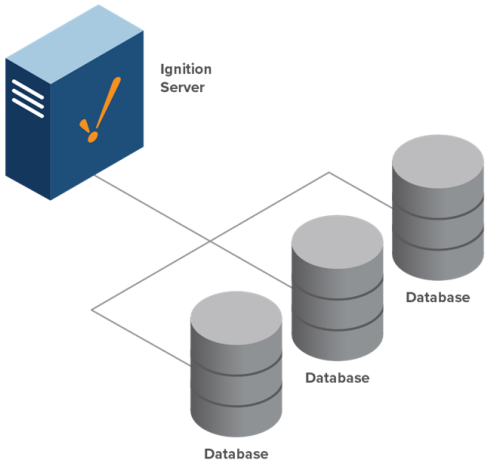
Historian FAQ’s

Single / Central Historian Scaling

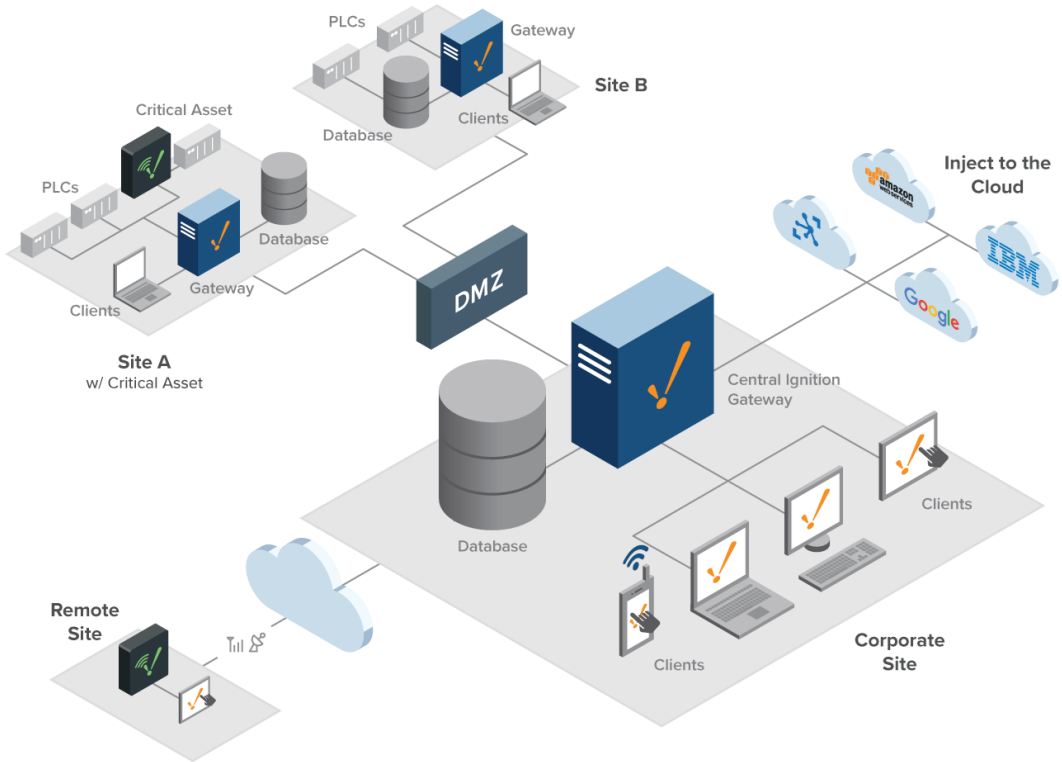
Single Database
Architectire



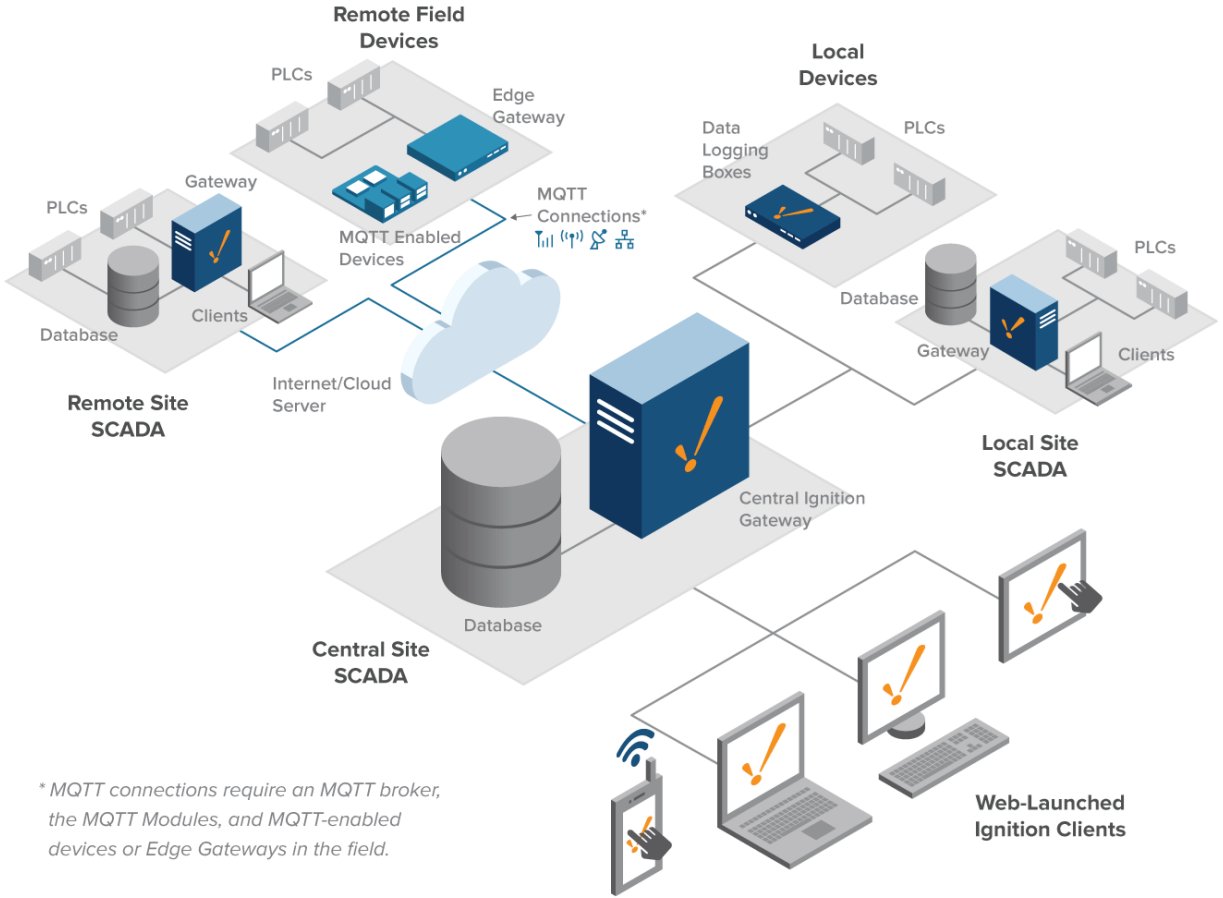
Scaling - Just add one
or more databases



Distributed Historian



Remote Data Collectors



** MQTT connections require an MQTT broker, the MQTT Modules, and MQTT-enabled devices or Edge Gateways in the field.*

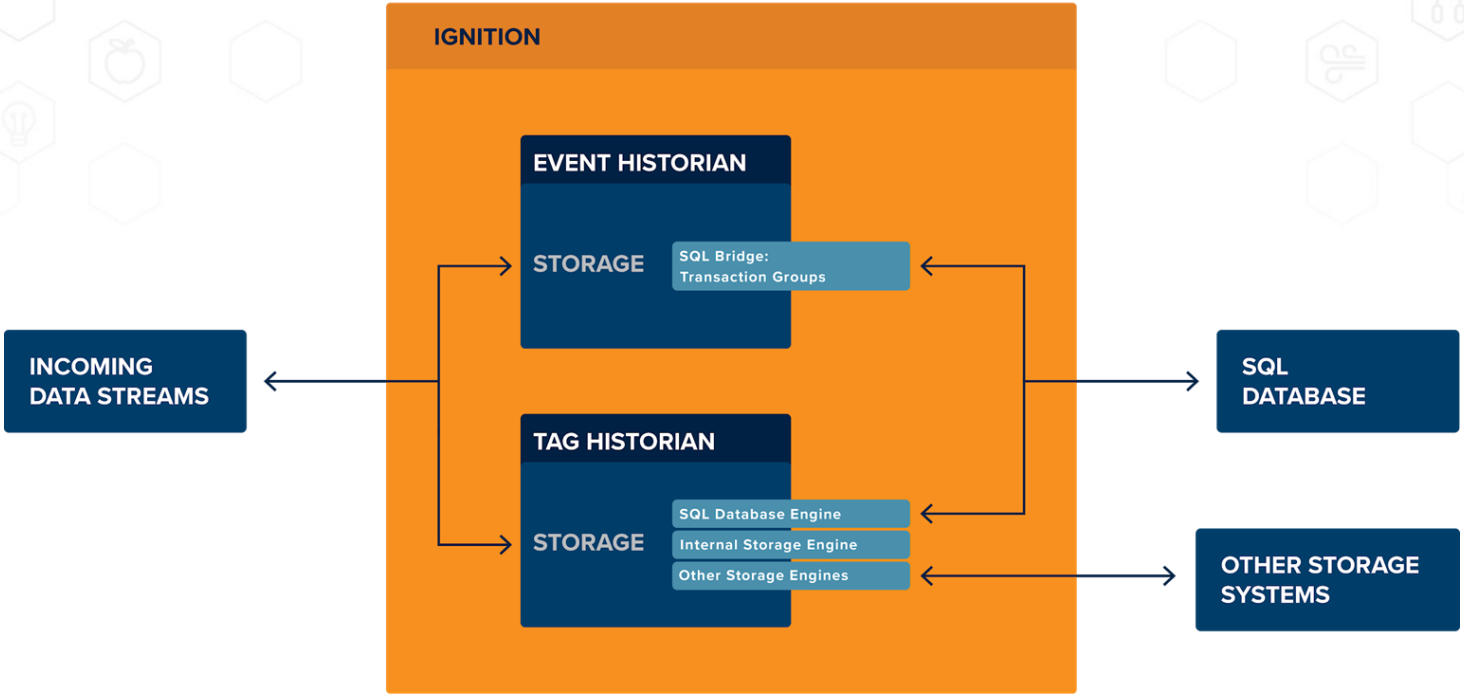
Historian FAQ's

What about plugging into other data storage?

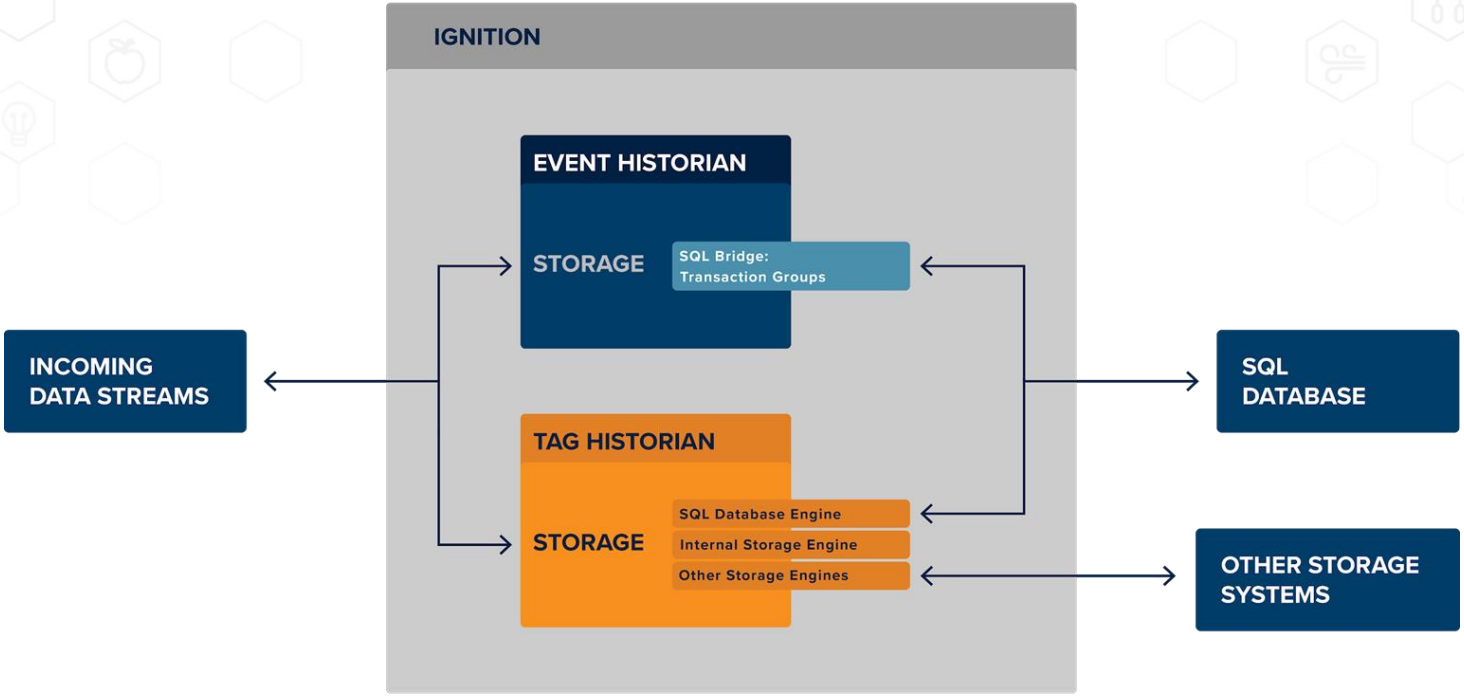
- Open SDK
  - Create your own data sink and data provider
- Or, use third-party modules that provide connectors created by other companies.
  - Module Showcase and Open Source
    - Influx DB History Provider
    - Cloud Historian Connectors
    - Azure and AWS Connectors

Now that we've answered those FAQ's, let's go into greater depth ...

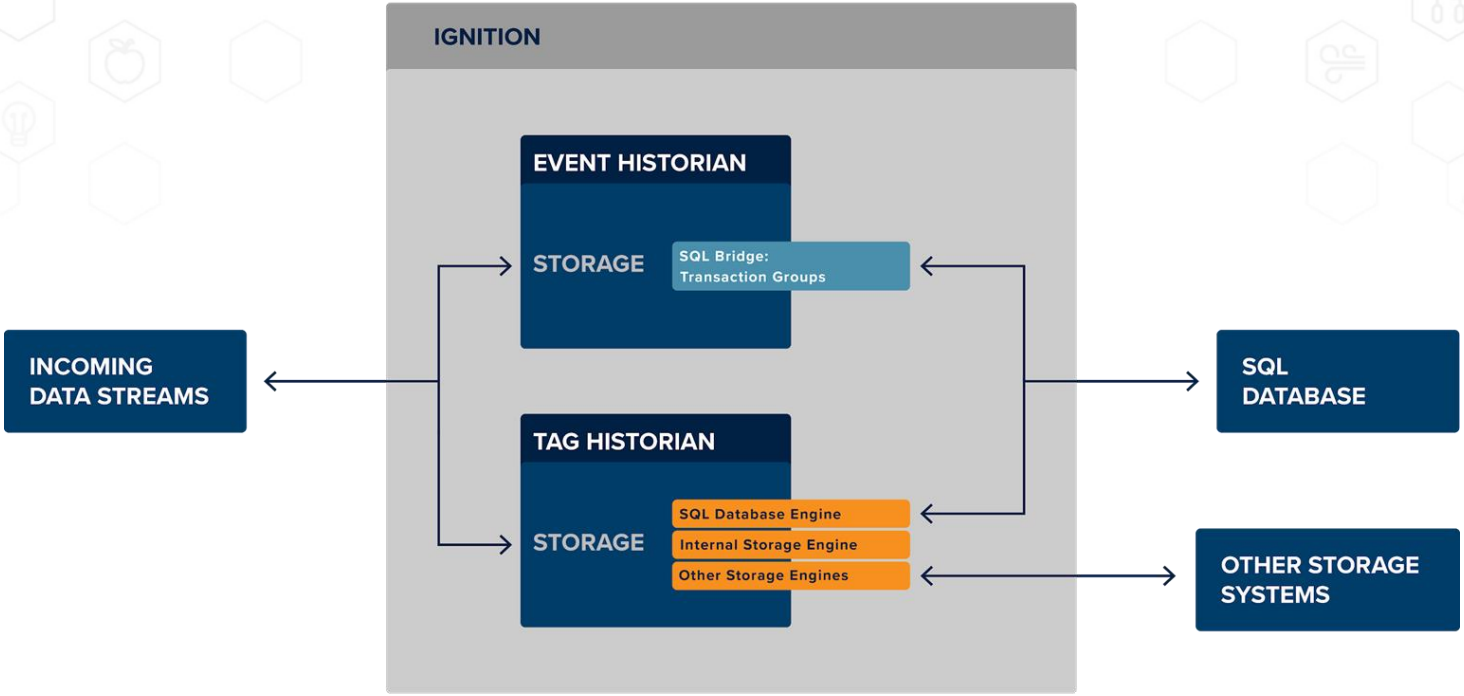
Technology Stack for Ignition as an Historian



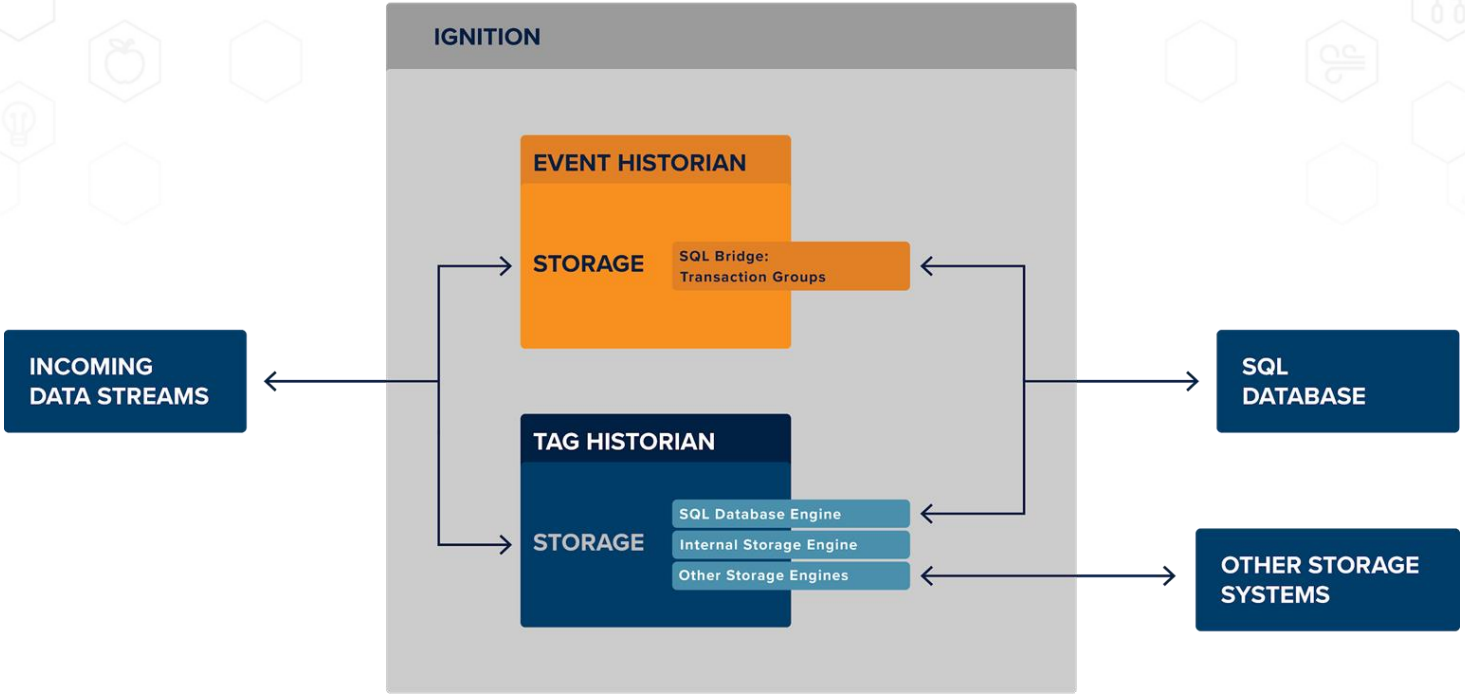
Technology Stack for Ignition as an Historian



Technology Stack for Ignition as an Historian



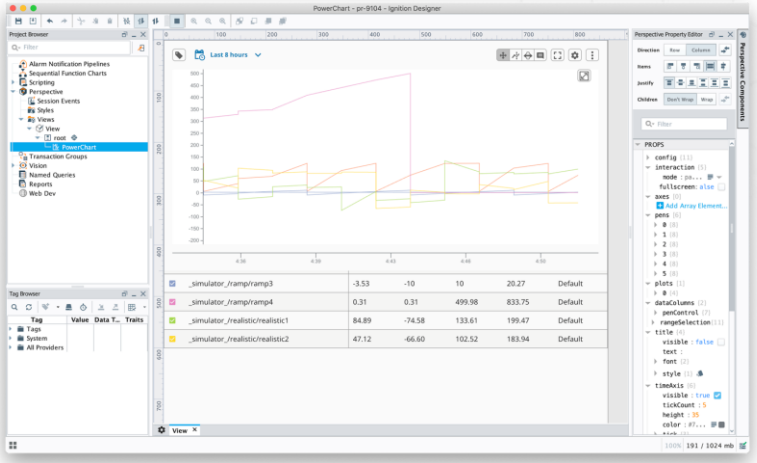
Technology Stack for Ignition as an Historian



Data Visualization, Access & Backup

Visualizing Data

- Easy Chart (Vision Module) & Power Chart (Perspective Module)
  - Ignition 8.1 introduced the Power Chart, which integrates with the Tag Historian system. This can show data from:
    - Tag Historian
    - SQL Data
  - Also in the Power Chart: Browse Tags and Annotations

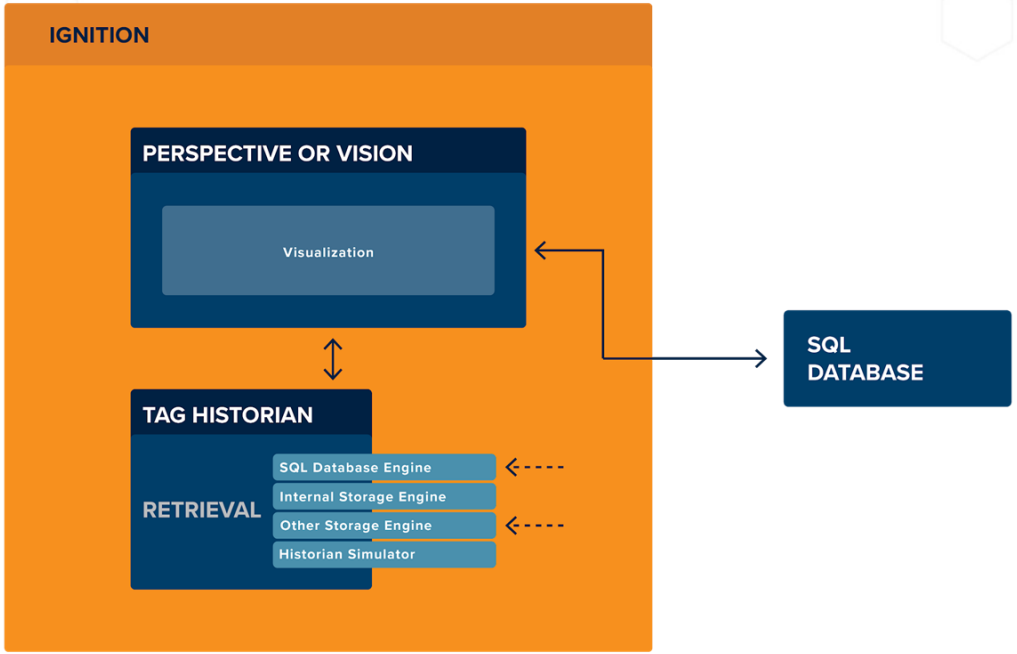


Data Visualization, Access & Backup

Visualizing Data

- Dashboards
- Aggregates, time windows, analysis based on Events
- Machine Learning, connections to external systems

Data Visualization, Access & Backup



Data Visualization, Access & Backup

Data Accessibility

- SQL access
- REST access
- Data export and import
- Data modeling and accessibility on the cloud

Backup & Archiving

- Data storage tools

Ignition Demo

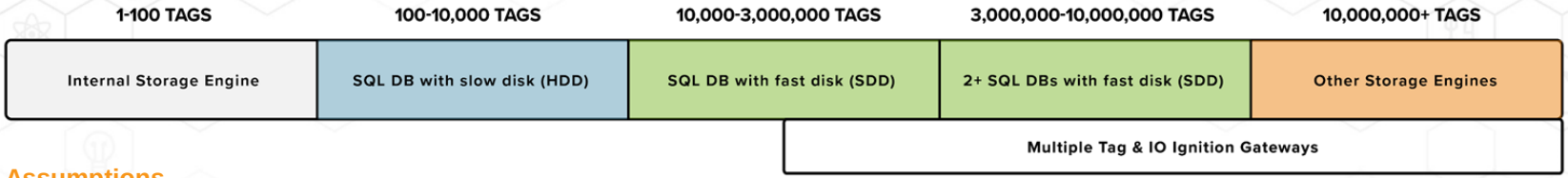
Benchmarks

Benchmarks

- SQL Database Storage Engine
  - Microsoft SQL Server: 3-5 million tags
  - Postgres (and Timescale): 2-3 million tags
  - MySQL: 500k - 1 million tags
  - Oracle: 1 million+ tags

Benchmarks based on 10s storage rates and 10% of tags changing

Benchmarks

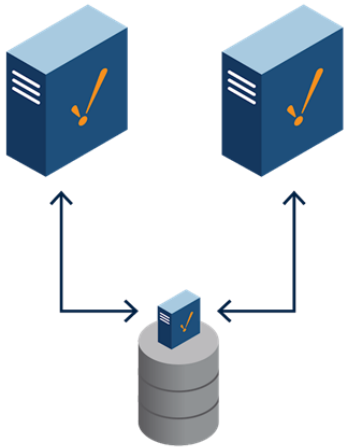


Assumptions

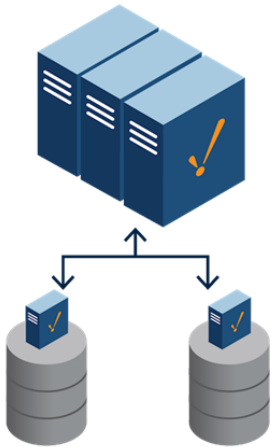
- 10s rate
- 10% tags changing
- Microsoft SQL Server or Postgres + Timescale

10,000 TAG ARCHITECTURE

500,000 TAG ARCHITECTURE

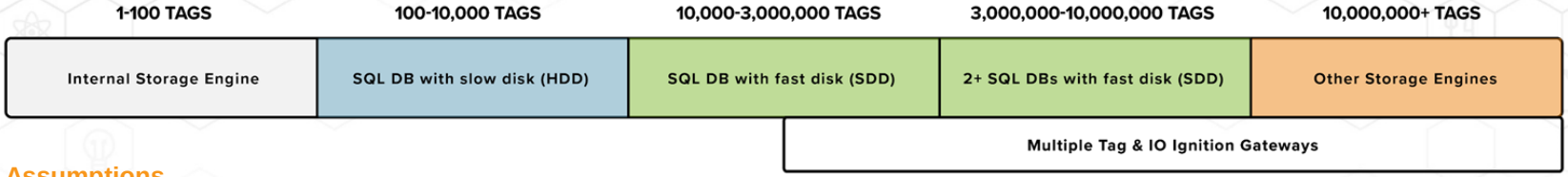


5,000,000 TAG ARCHITECTURE



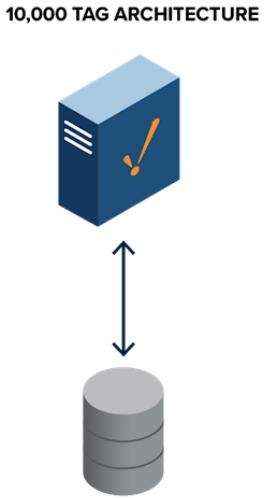
* The stack of Tag/IO Ignition Gateways represents more than

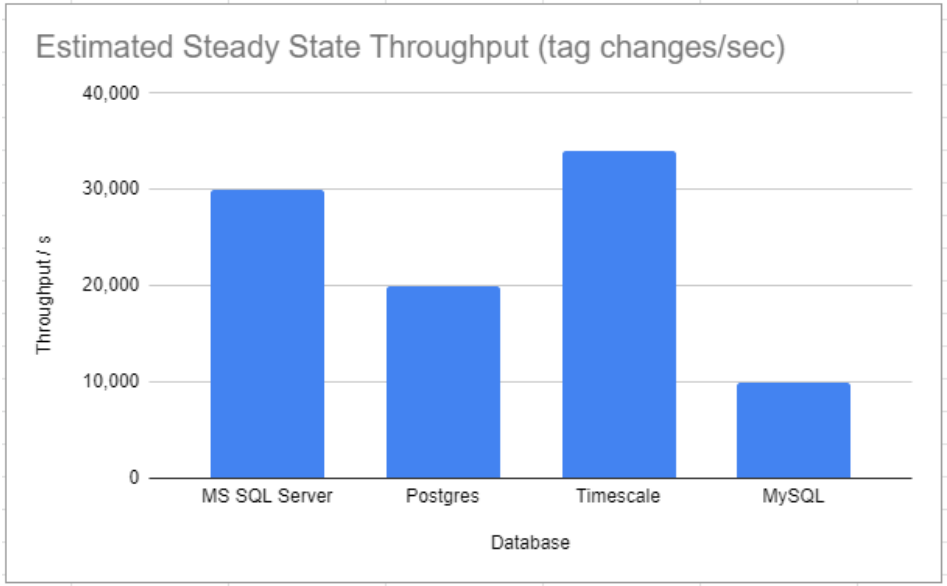
Benchmarks



Assumptions

- 10s rate
- 10% tags changing





See companion document for more details

Benchmarks

- Ways to increase Tag Historian throughputs:
  - Set rates appropriately. Avoid anything faster than 10s unless needed.
  - If using an HDD-backed storage, switch to SSD
  - Set appropriate deadbands. If sensors have a rated accuracy, and you're not setting deadbands around that, a lot of noise will be logged unnecessarily.
  - Choose a database with high throughput
  - In addition to the main Ignition Gateway or Tag / IO Gateways, install the Tag Historian on the same server as the SQL database, connected over the Gateway Network

Considerations

- Storage space requirements
- Database backups & Archiving
- Very high throughputs
- Encryption at rest

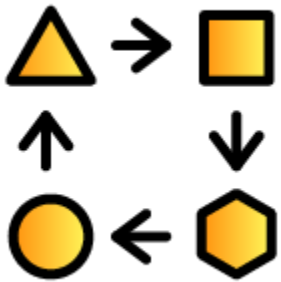
Considerations

Materials

- Look for the companion guide after this webinar.

Wrap-up Discussion

Historical data can be a key to future organizational success.



Ready to Try Ignition for Yourself?

Download the full version for free at:
inductiveautomation.com

inductiveuniversity.com

Ignition User Manual also available at:
docs.inductiveautomation.com

Questions & Comments

Ignition! by inductive automation

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